Initial Homestation Instrumented Training System (I-HITS) Information Brief

24 May 2005

Project Director
Roger Weber
407-384-5218

Purpose

To update the Exportable Training Capability Workshop Members on the results of the I-HITS Acquisition and PEO STRI plan to meet USATSC BOIP

Contract Details

I-HITS

- Contract Awarded to Cubic on 31 March ’05
- Contract Value ~ $72M over Next Five Years
- 1st System Scheduled for Camp Casey, Korea – 2005

I-HITS Overview

What is I-HITS and what does it provide?

- I-HITS Provides Soldiers CTC-Like Instrumentation Capabilities for use at Homestations
- Additionally, I-HITS is a Fully Deployable System
  - Deploys with the Soldiers
- I-HITS is a Modular System Supporting Rapid Scalability
  - Capable of Rapidly Adapting to Team and Platoon Level Training or Battalion or Brigade and Beyond

I-HITS Overview
Production Evolution

- **LOT 1/LOT 2**
  - Deployable CTC-Like Training Environment with ATREP Phase IV Capabilities
  - Introduces Issue and Receipt Hardware, O/C Instrumentation, and Evolution of Situational Display and Custom Alerts
- **LOT 3**
  - Integration of Government Invested Scenario Development Tool (SDT) for Remote Scenario Planning
  - Integration of Tactical Data Interface with PC-RIS to Inject and Receive FBCB2 Messages
  - Integration of the Live-Fire Force-on-Target Digital Range Training System (DRTS) EXCON Module into the PC-RIS Platform
- **Technology Insertion & Product Evolution**
  - Incorporate TENA Architecture In-Line with ATREP Phase V
  - Incorporate CTIA Server In-Line with CTIA Program
  - Joint Operations and LVC Integration In-Line with ATREP Development Program

I-HITS Capabilities

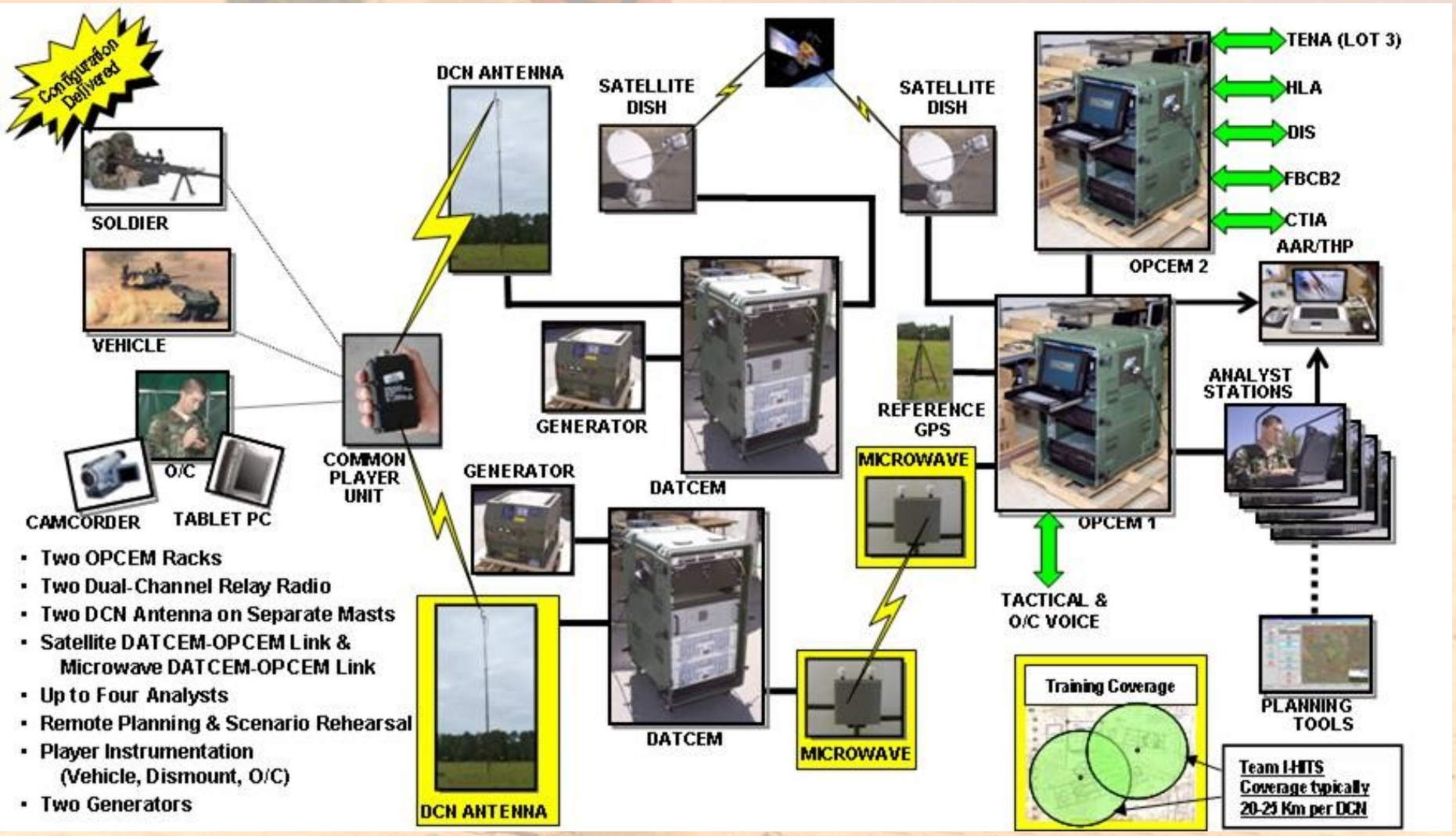
- Direct Fire Tactical Engagement Simulation System (TESS)
- Area Weapons Effects (AWE)
- Dismount Player Instrumentation
- Vehicle Player Instrumentation
- Rotary Wing/Army Aircraft Instrumentation
- O/C Instrumentation with Remote Situational Award Display
- Tactical Voice Integration
- Tactical Data/C4ISR Integration – FBCB2
- Remote Mission Planning Tools
- Simultaneous 2D/3D Exercise Monitoring Capability
- Extensive Multimedia AAR Capabilities
- Instant Dynamic Replay AAR Capabilities
- Take Home Packages

Deployable and Homestation System Evolution

- 1st Generation – DSTAR (US)
  - Deployable System for Training and Readiness: 2001
  - Used for Tracking Individuals on Land-NAV Course at Ft Benning (Safety Application)
  - 200 Dismount
- 2nd Generation – ATREP (US)
  - Alaska Training Range Evolution Program: 1999 – Present
  - Joint Army – Air Force Training on the Yukon Training Range
  - Integrating with DRTS Force-on-Target Ranges
  - 180 Stryker Platforms, 6 Rotary Wing, 950 Dismount
  - 100-Room Indoor Tracking for MOUT Application
- 3rd Generation – I-HITS
  - Increased Capabilities for US Market (Scenario Planning, Tactical Data Interface, CTIA Interface, Evolved LVC Interface)
  - Modular Design Allows for Increased Scalability and Mobility
- ***Minimal Infrastructure Requirements***
- ***Minimal Staffing***
- ***Inexpensive***

ATREP/DTAR Configuration is Basis for I-HITS System

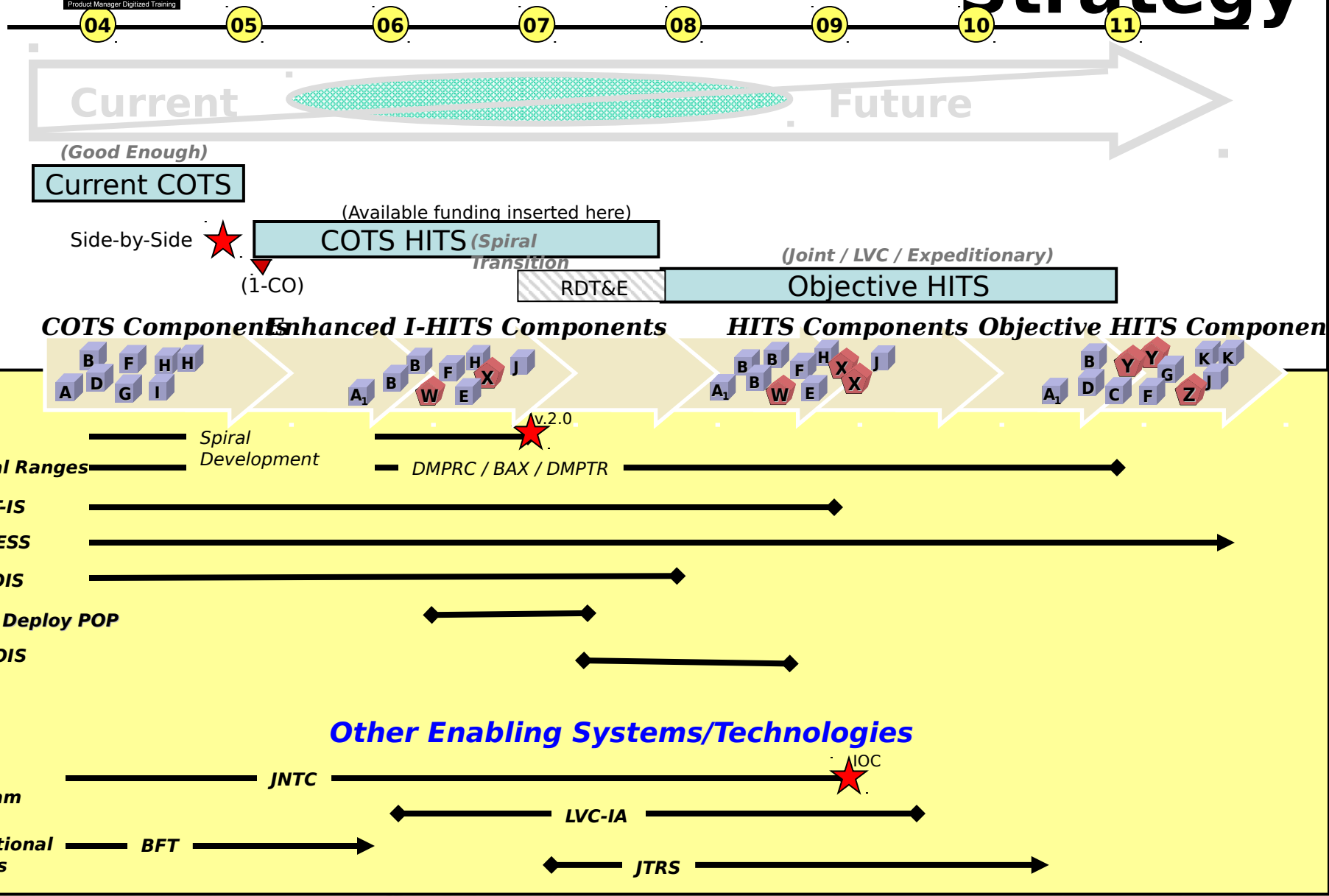
I-HITS Components



I-HITS Program Structure Chart

Phases:	FY04	FY05	FY06	FY07	FY08	FY09	FY 10	FY 11	FY 12	FY 13	TOTAL
Milestones	1 | 2 | 3 | 4	1 | 2 | 3 | 4	1 | 2 | 3 | 4	1 | 2 | 3 | 4	1 | 2 | 3 | 4	1 | 2 | 3 | 4	1 | 2 | 3 | 4	1 | 2 | 3 | 4	1 | 2 | 3 | 4	1 | 2 | 3 | 4	
Acquisition Phase	▲	▲									
Contract Award **EUSA** (Lot II)		▲	△								
Ft Carson (3) (Lot III)			△								
Ft Riley (2)			△								
Ft Hood (6)			△	△							
Ft Polk (2)				△							
Ft Campbell (2)				△							
Ft Drum (2)				△							
Ft Lewis (3) (fielded 1 in FY05 w/ATREP)					△						
Ft Bragg (6)					△	△					
Ft Stewart (3)					△						
Ft Bliss (2)					△						
FT Sill (1)					△						
Ft Benning (3)						△					
Ft Eustis/Ft Lee/AP Hill (1)						△					
Ft Leonard Wood (2)						△					
LT2, CTIA Integration					▲	▲					
Ft Huachuca (1)							△				
Ft Knox (1)							△				
USAREUR (3)							△				
EUSA Korea (1)							△				
Schofield Bks (1)							△				
Ft Wainwright (1)							△				
Ft Richardson (1)							△				
Reserve Component (8)							△	△			
South West Asia (3)								△			

HITS Transition Strategy



Leveraging Opportunities

- **Leveraging of ATREP efforts brings valuable technical capabilities to I-HITS**
  - **Uses an Open architecture to accommodate new and emerging weapon systems and C4I systems. Allows for seamless interface into other Live/Virtual/Constructive.**
  - **Joint System integrates entire Alaska Training Range (USAF-Individual Air Crew Debriefing System and ATREP System)**
  - **TENA Compliant for USAF Ops**
  - **HLA/DIS Compliant for LVC Operations**
  - **UH60/OH58 D TESS Solution which will migrate to Armed Reconnaissance Helicopter**
  - **Integrate Communications Architecture into Digital Ranges**

- **Leverages off of FMS and Direct Sales ongoing with contractor (British/Canada/Australian)**

Future Growth

- Rotary Wing (UH-60, OH-58D), use Alaska Congressional Plus up to fund
- Joint
- Secret System High Capability for Joint Operations
- Migrate to CTIA
- Wrap Digital Ranges into Architecture
- Leverage w/ATREP to pay for System Growth
- Interoperate w/OneTESS

Proven System

- Supported Millennium Challenge (July 02)
- Ft Lewis LVC POP (Aug 04)
- Supported SBCT 3 Company Level Ex-Evals
- NTC Rotation Support (April 05)
- Integrating Instrumented IWS and Transportable Relays into JRTC Infrastructure (May 05)
- Deploying to Australia to support Talisman Sabre Exercise (June 05)
- Fielding DSTAR STRYKER Instrumented Company July05
- Similar System currently fielded for British Army/Canadians/Australian/Hungary

I-HITS Expansion Potential

- LIVE (GROUND, AIR, TARGET, ETC.) TRAINING
- VIRTUAL TRAINING
- CONSTRUCTIVE TRAINING
- INTELLIGENCE ELECTRONIC WARFARE TACTICAL PROFICIENCY TRAINER (IEWTPT)
- C4ISR
- TRAINING INFO-SYSTEMS

INSTRUMENTATION

RELAY RADIO

RELAY RADIO

DRTS RANGE

SATELLITE EQUIPMENT RACK

SATELLITE EQUIPMENT RACK

EXCON RACK

CNR NET

THP

ANALYST STATION

AAR

= ANALYST STATIONS

PLANNING TOOL

HLA

DIS

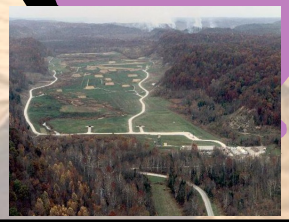
TENA

LVC-IA

TENA

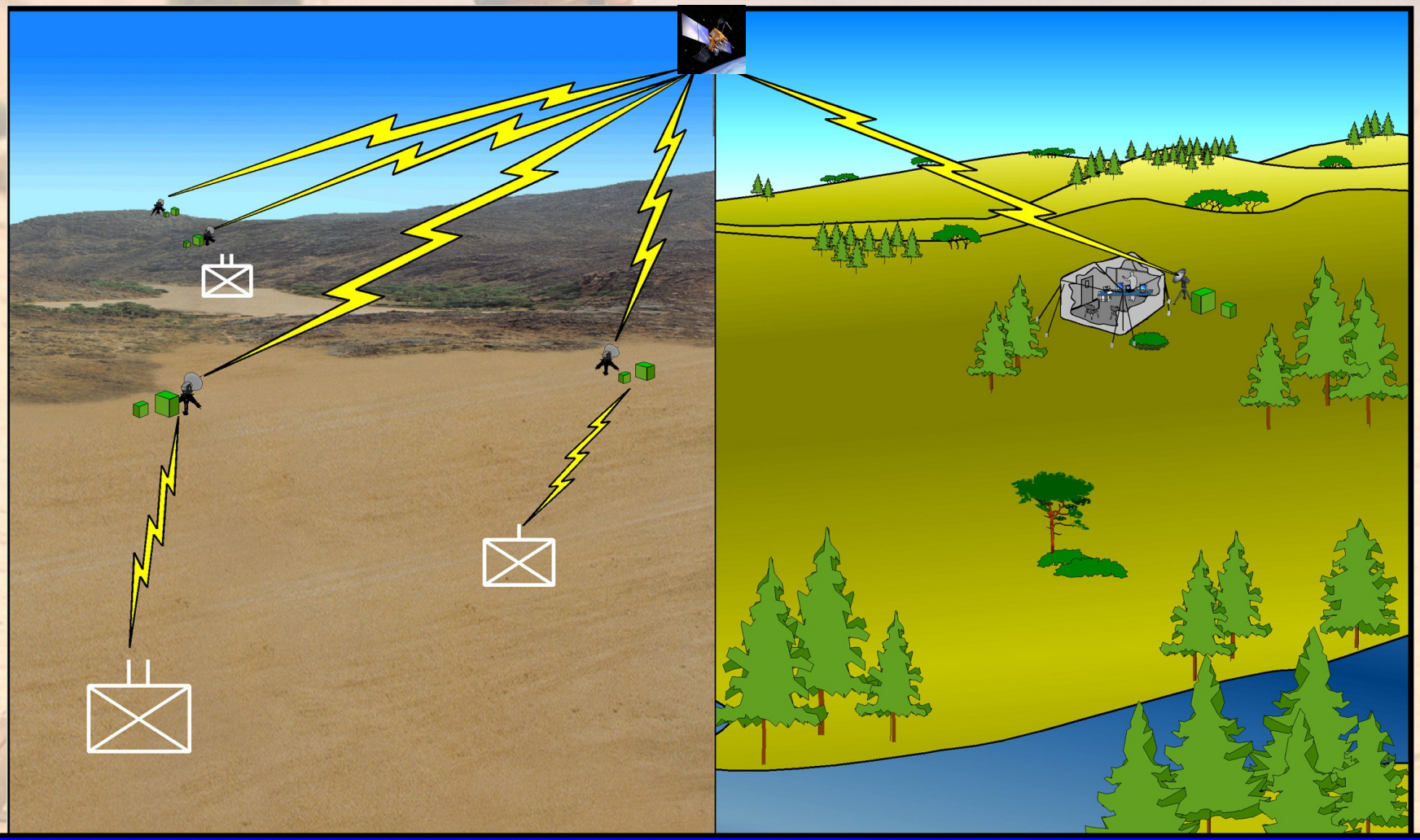
LVC-IA

DATA NET (FBCB2)



Easily Expandable to Full LVC, EW, C4ISR Training

Remote Operations



Deploy Anywhere **Monitor and Control Somewhere Else**

Mobile Solution

- Consists of Individual Transportable Cases and Racks
- Transportable as Standard Cargo on Fixed Wing and Rotary Wing Aircraft or Ground Transport
- Deployable from a Fixed Installation or a Vehicle
- Not Dependent Upon Existing Infrastructure
- Small Logistic Footprint
- Supports Ease of Installation

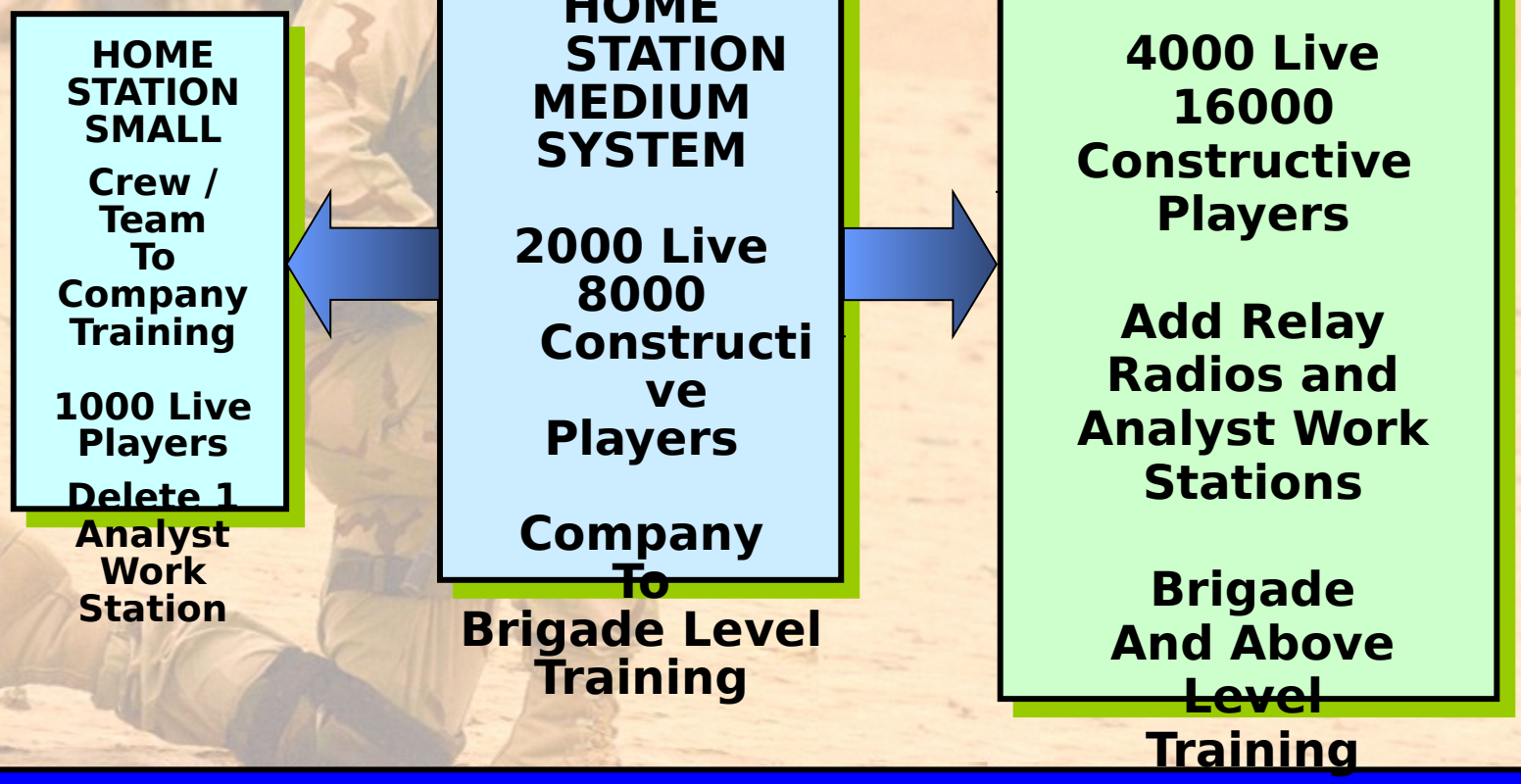
Compact System Immediately Available for Rapid Deployment

Modular Solution

- Modular in its Basic Form
- Contains Operational Equipment Modules (EXCON)
- Contains Data Communications Equipment Modules (Relay Radio)
- Capable of Supporting Additional Players by Adding Relay Radio Modules and Analyst Work Station
- Supports Ease of Setup
- Supports Ease of Maintenance (Plug n' Play)

Modular = Expandable, Maintainable

System Scalability


HOME STATION SMALL
Crew / Team To Company Training
1000 Live Players
Delete 1 Analyst Work Station
HOME STATION MEDIUM SYSTEM
2000 Live 8000 Constructive Players
Company To Brigade Level Training
HOMESTATION LARGE
4000 Live 16000 Constructive Players
Add Relay Radios and Analyst Work Stations
Brigade And Above Level Training

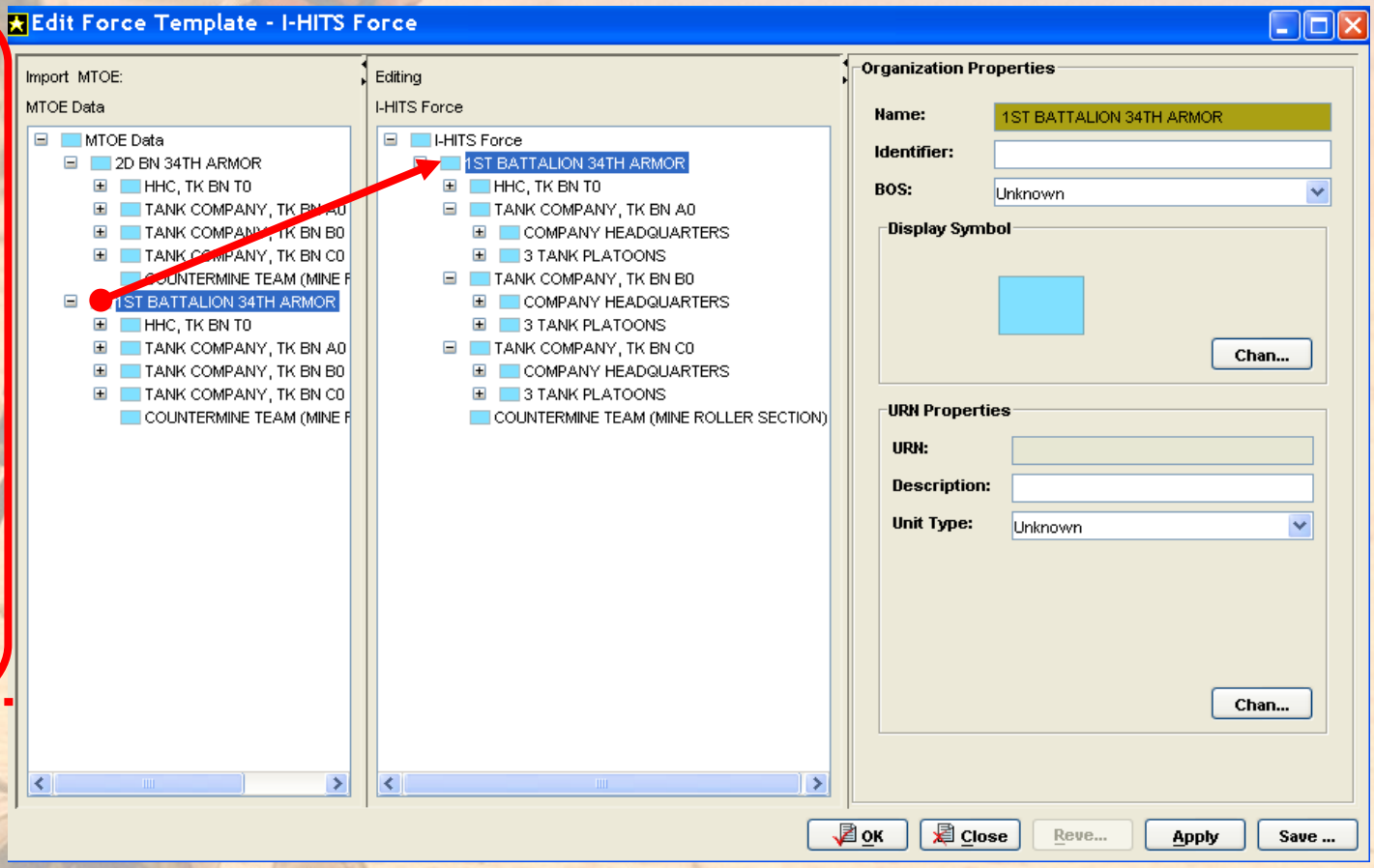
System Modularity Inherently Supports Scalability

Exercise Planning Key Points

- Long-Range Planning Support
  - Terrain Analysis
  - Incorporation of Imagery
  - Directives, Plans, Schedules, etc. through MS Office Products
- Short-Range and Near-Term Planning Integration
  - Supports Mission Essential Task List (METL)
    - Mission Training Plans (MTP) Selectable from Doctrine
  - Scenario Rehearsal Capability
    - Validates Plan
- Planned FBCB2 Messages
  - Created with Integrated GUIs
  - Automatically Sent Based on Key Events, Time, Operator Selected
  - Separate Whitebox is NOT Required for FBCB2 Planning

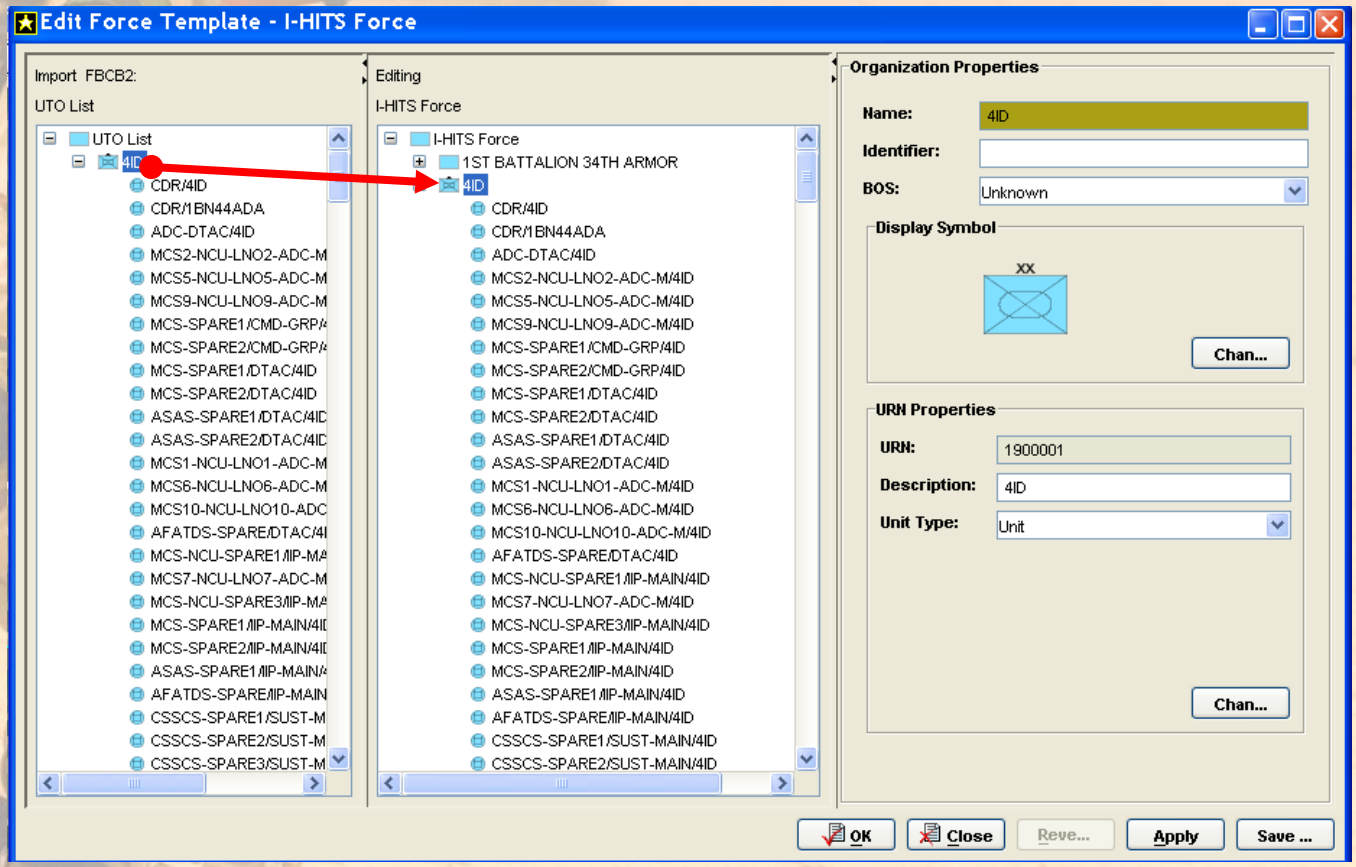
Import Force Structure Directly from MTOE

Drag & Drop Modified Table of Organization and Equipment (MTOE) Directly from WebTAADS Data file into CTC Force Structure



Import Force Structure from FBCB2 UTO

Drag & Drop FBCB2 Unit Task Organization (UTO) Directly into CTC Force Structure



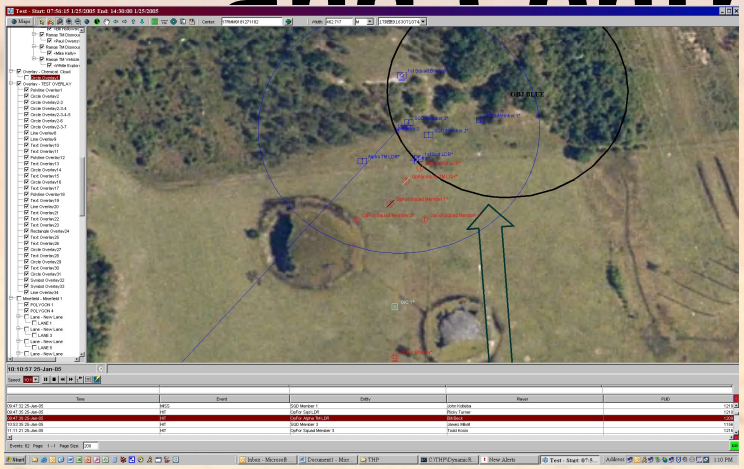
Exercise Control Key Points

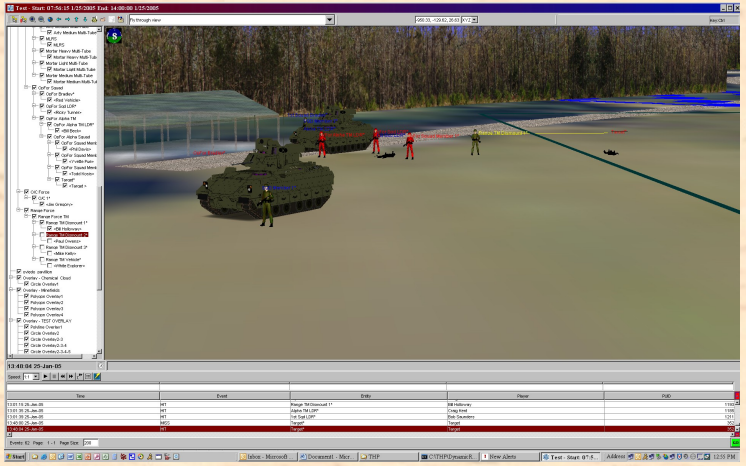
- Flexible, Feature-Rich Situational Displays that are Easy to Use
- Custom Alerts Tailored to Reduce Operator Workload
- Area Weapons Effects (AWE)
- Status Displays Offering Varying Array of Exercise Data
- Automated Target Control
- FBCB2 Tactical Interaction

A Proven Immediately Available Enhanced COTS Solution with No Development Risk

Exercise Management and Control

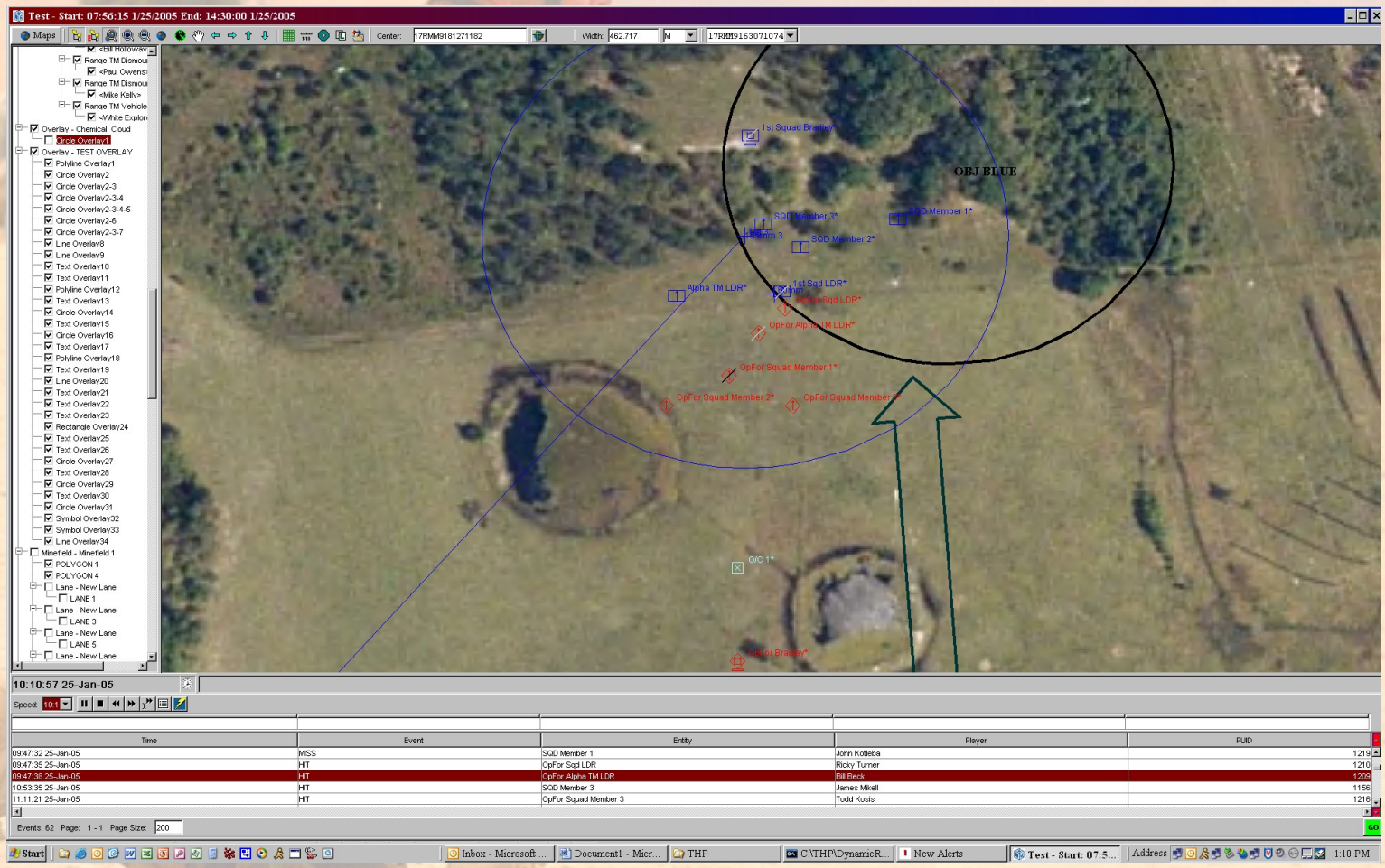
- Up to 5 Simultaneous Situation Displays 2D and 3D
  - Provides Situational Awareness to the training analyst
  - Minimizes time to prepare AARs (any mix of live and replay displays)





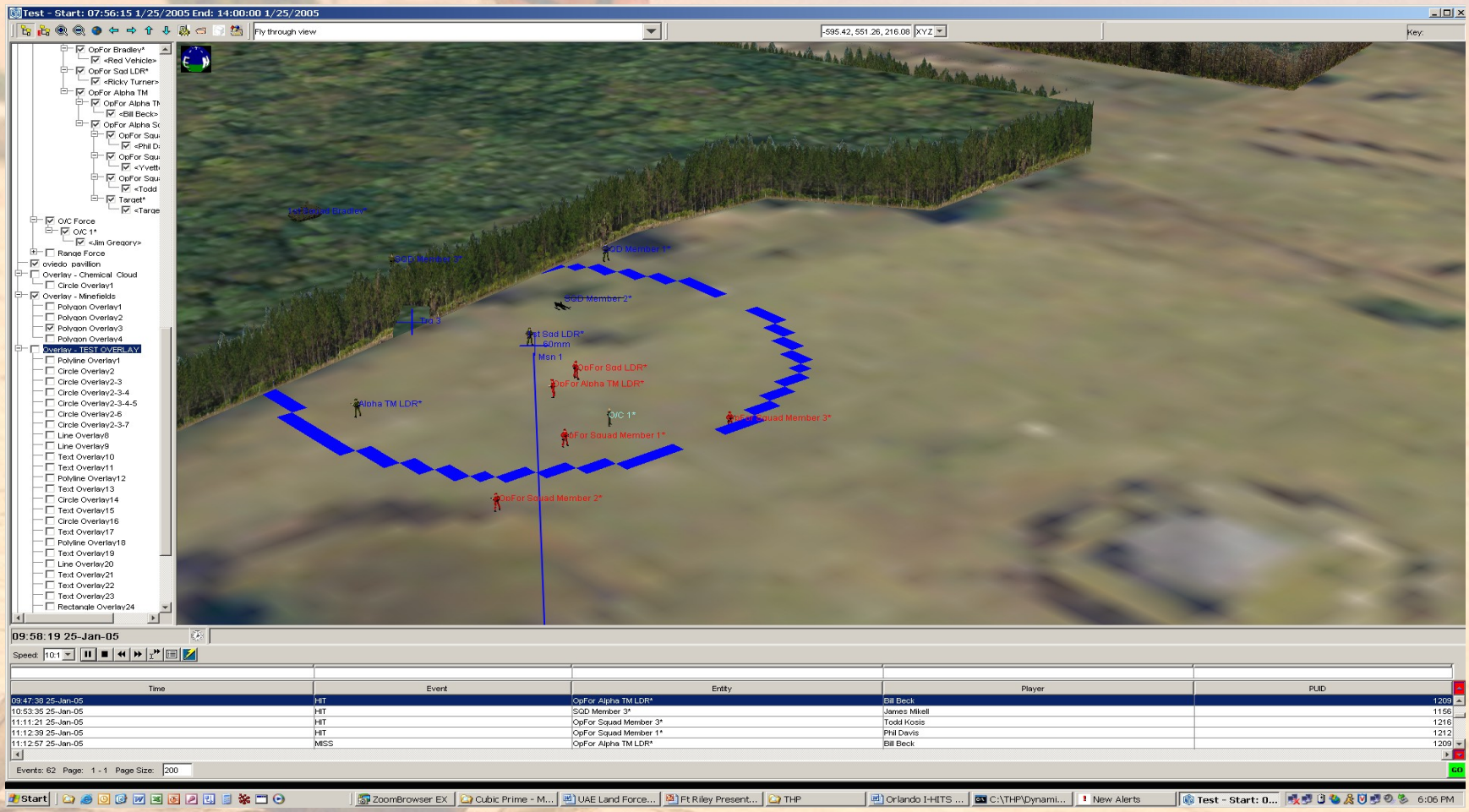
Situation Displays – Flexible, Easy to Use, and Feature Rich

Exercise Control - AWE


Test - Start: 07:56:15 1/25/2005 End: 14:30:00 1/25/2005
OBJ BLUE
1st Squad Bradley*
SQD Member 3*
SQD Member 1*
SQD Member 2*
Alpha TM LDR*
1st Sqd LDR*
OpFor Alpha TM LDR*
OpFor Squad Member 1*
OpFor Squad Member 2*
OpFor Squad Member 3*
O/C 1*
10:10:57 25-Jan-05
Time
Event
Entity
Player
PUID
09:47:32 25-Jan-05 MISS SQD Member 1 John Kotleba 1219
09:47:35 25-Jan-05 HIT OpFor Sqd LDR Ricky Turner 1210
09:47:38 25-Jan-05 HIT OpFor Alpha TM LDR Bill Beck 1209
10:53:35 25-Jan-05 HIT SQD Member 3 James Mikell 1156
11:11:21 25-Jan-05 HIT OpFor Squad Member 3 Todd Kosis 1216

Heavy, Medium, and Light Mortar with Overlay Graphics On – 2D

Exercise Control - AWE

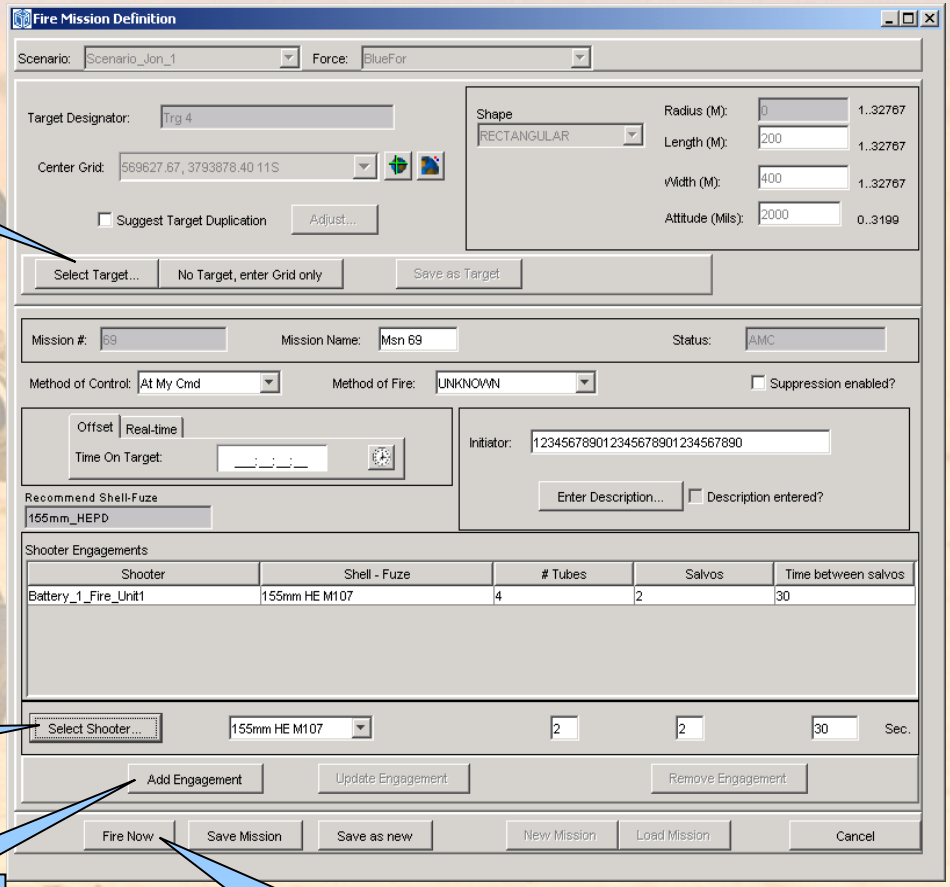

Test - Start: 07:56:15 1/25/2005 End: 14:00:00 1/25/2005
Fly through view
09:58:19 25-Jan-05
Time
Event
Entity
Player
PUID
09:47:38 25-Jan-05 HIT OpFor Alpha TM LDR* Bill Beck 1209
10:53:35 25-Jan-05 HIT SQD Member 3* James Mikell 1156
11:11:21 25-Jan-05 HIT OpFor Squad Member 3* Todd Kosis 1216
11:12:39 25-Jan-05 HIT OpFor Squad Member 1* Phil Davis 1212
11:12:57 25-Jan-05 MISS OpFor Alpha TM LDR* Bill Beck 1209

Heavy, Medium, and Light Mortar with Overlay Graphics Off – 3D

Exercise Control Call for Fire

Indirect Fire Support

- Analysts can quickly respond to calls for fire for enhanced training



Step 1: Select Target or Grid

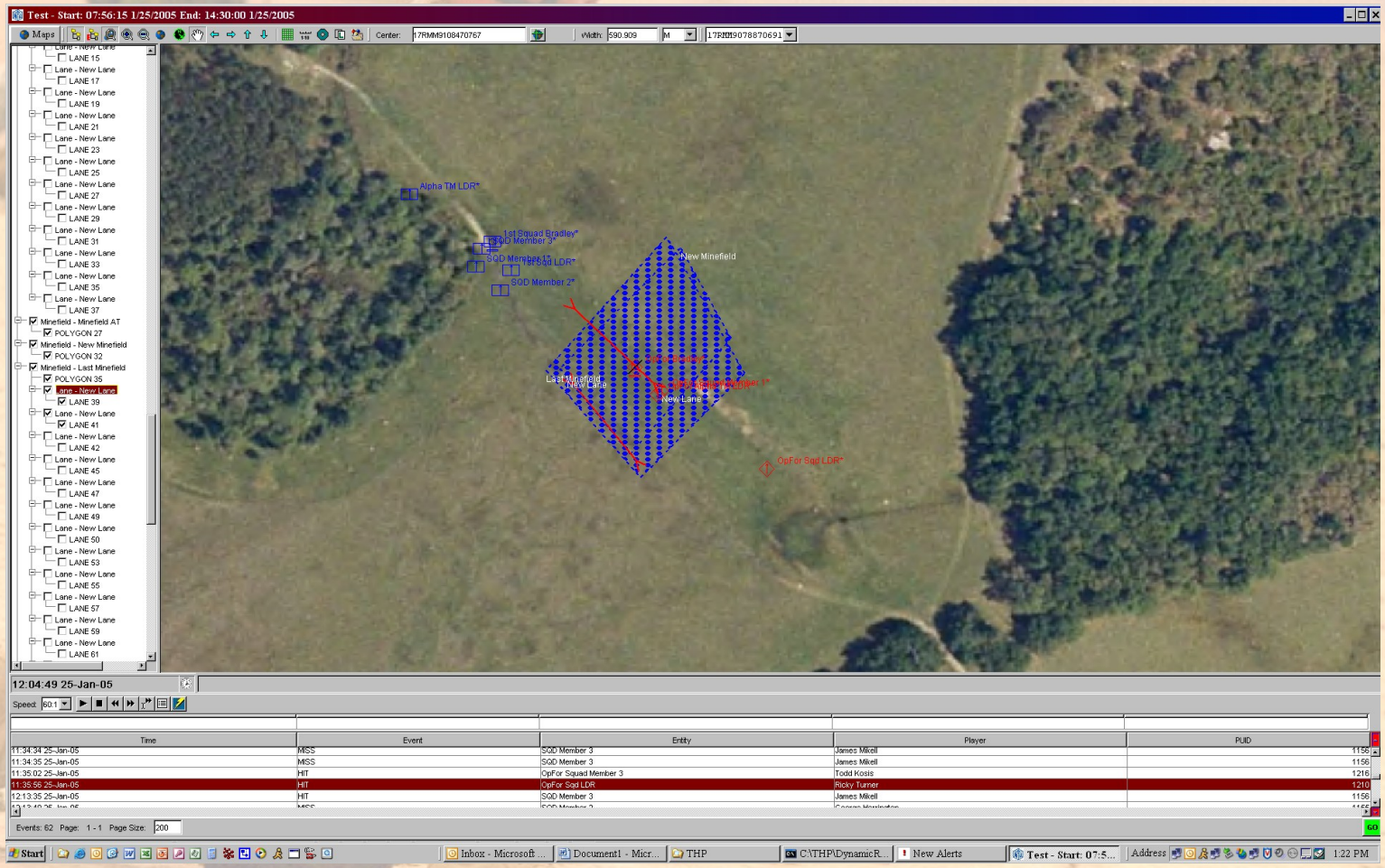
Step 2: Select Shooter

Step 3: Add Engagement

Step 4: Fire Now

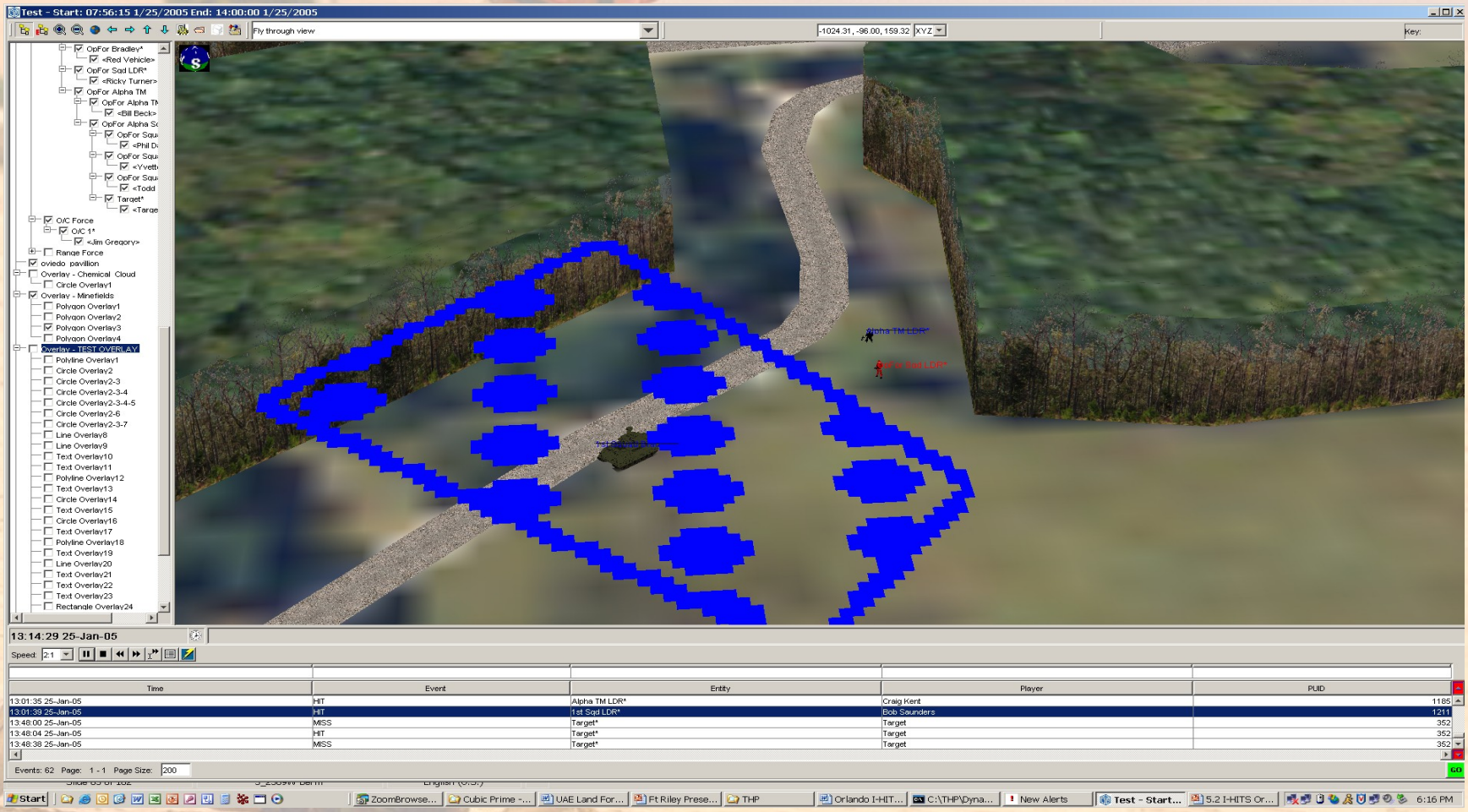
Area Weapons Effects – Monitor CNR and Respond Appropriately

Exercise Control - AWE


Test - Start: 07:56:15 1/25/2005 End: 14:30:00 1/25/2005
Alpha TM LDR*
1st Squad Bradley*
SQD Member 2*
SQD Member 3*
SQD Member 2*
New Minefield
New Lane
OpFor Sqd LDR*
12:04:49 25-Jan-05
Time
Event
Entity
Player
PUID
11:34:34 25-Jan-05 MISS SQD Member 3 James Mikell 1156
11:34:35 25-Jan-05 MISS SQD Member 3 James Mikell 1156
11:35:02 25-Jan-05 HIT OpFor Squad Member 3 Todd Kosis 1216
11:35:56 25-Jan-05 HIT OpFor Sqd LDR Ricky Turner 1210
12:13:35 25-Jan-05 HIT SQD Member 3 James Mikell 1156

Anti-Personnel and Anti-Tank Minefields with Lane Breach – 2D

Exercise Control - AWE



Anti-Personnel and Anti-Tank Minefields – 3D

MOUT Training

MOUT POSITION TRACKING

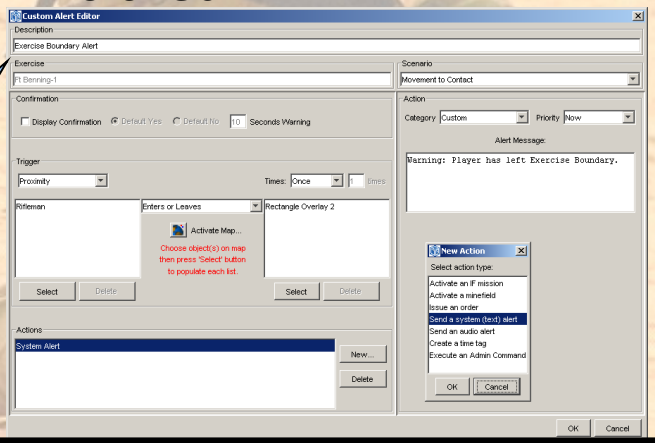
Solid Buildings or…

MOUT Training

…Transparent Buildings – One Click

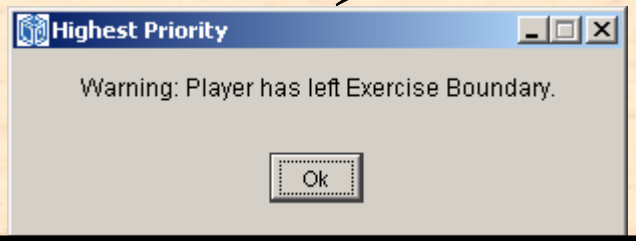
Exercise Control Custom Alerts

- Custom alerts provide analyst automation support and focuses analyst attention to important events
  - e.g., Notification when Platoon Commander crosses LD
  - exploiting extensibility to automate pop-up targets
- Custom Alerts can be included in Scenario Documents
  - supports scripted scenarios
- Range Safety – easy to set up
  - Define exercise boundary graphically and receive notification when violated



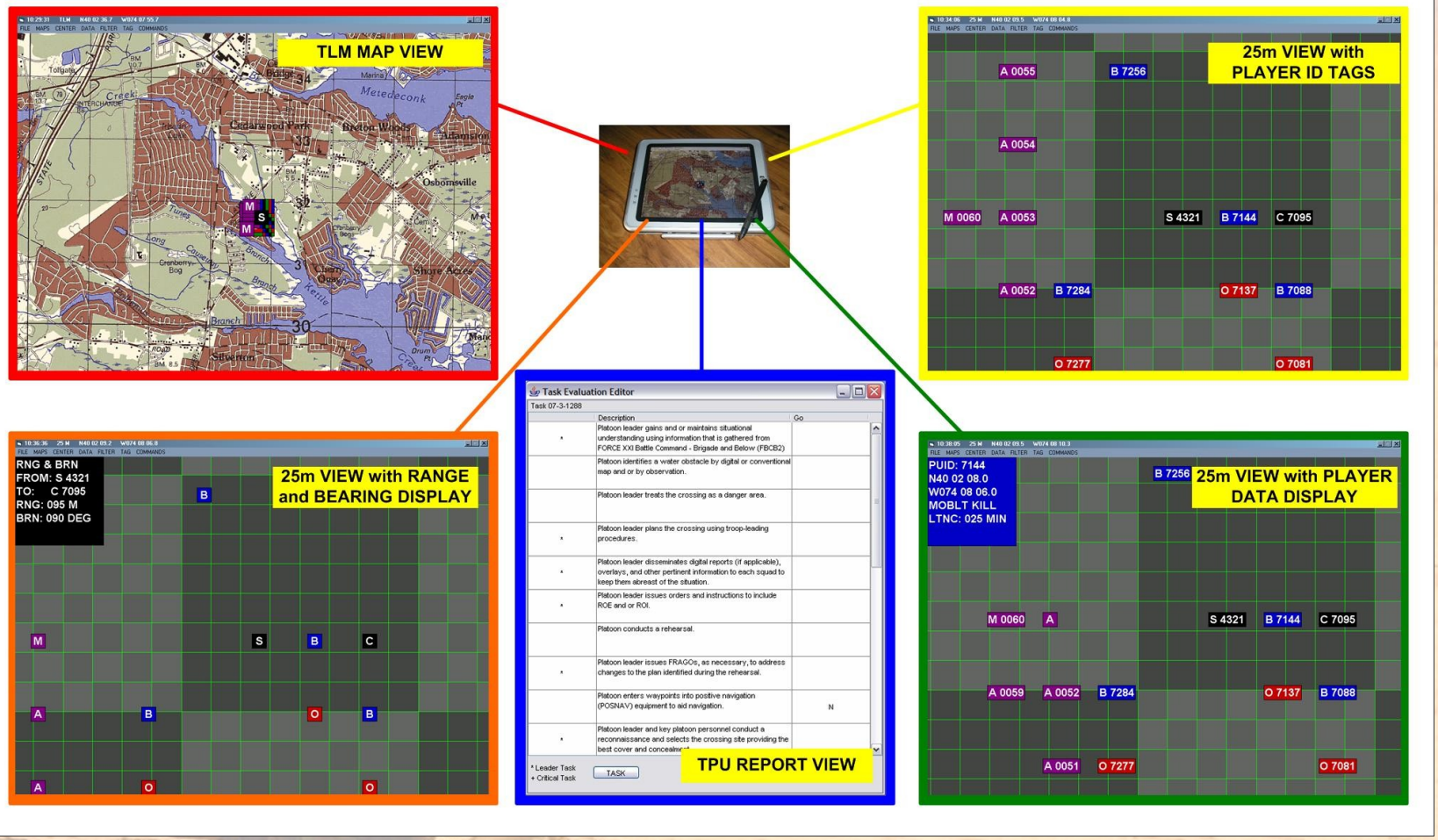
Step 1: Define Custom Alert

Step 2: Analyst is Alerted



Extensible set of Triggers and Actions Reduce Operator Workload

Data Collection O/C Tablet PC


TLM MAP VIEW
25m VIEW with PLAYER ID TAGS
A 0055
B 7256
A 0054
M 0060
A 0053
S 4321
B 7144
C 7095
A 0052
B 7284
O 7137
B 7088
O 7277
O 7081
Task Evaluation Editor
Task 07-3-1288
Description
Go
Platoon leader gains and or maintains situational understanding using information that is gathered from FORCE XXI Battle Command - Brigade and Below (FBCB2)
Platoon identifies a water obstacle by digital or conventional map and or by observation.
Platoon leader treats the crossing as a danger area.
Platoon leader plans the crossing using troop-leading procedures.
Platoon leader disseminates digital reports (if applicable), overlays, and other pertinent information to each squad to keep them abreast of the situation.
Platoon leader issues orders and instructions to include ROE and or ROI.
Platoon conducts a rehearsal.
Platoon leader issues FRAGOs, as necessary, to address changes to the plan identified during the rehearsal.
Platoon enters waypoints into positive navigation (POSNAV) equipment to aid navigation.
Platoon leader and key platoon personnel conduct a reconnaissance and selects the crossing site providing the best cover and concealment
* Leader Task
+ Critical Task
TASK
TPU REPORT VIEW
RNG & BRN
FROM: S 4321
TO: C 7095
RNG: 095 M
BRN: 090 DEG
25m VIEW with RANGE and BEARING DISPLAY
PUID: 7144
N40 02 08.0
W074 08 06.0
MOBLT KILL
LTNC: 025 MIN
25m VIEW with PLAYER DATA DISPLAY
A 0059
A 0051

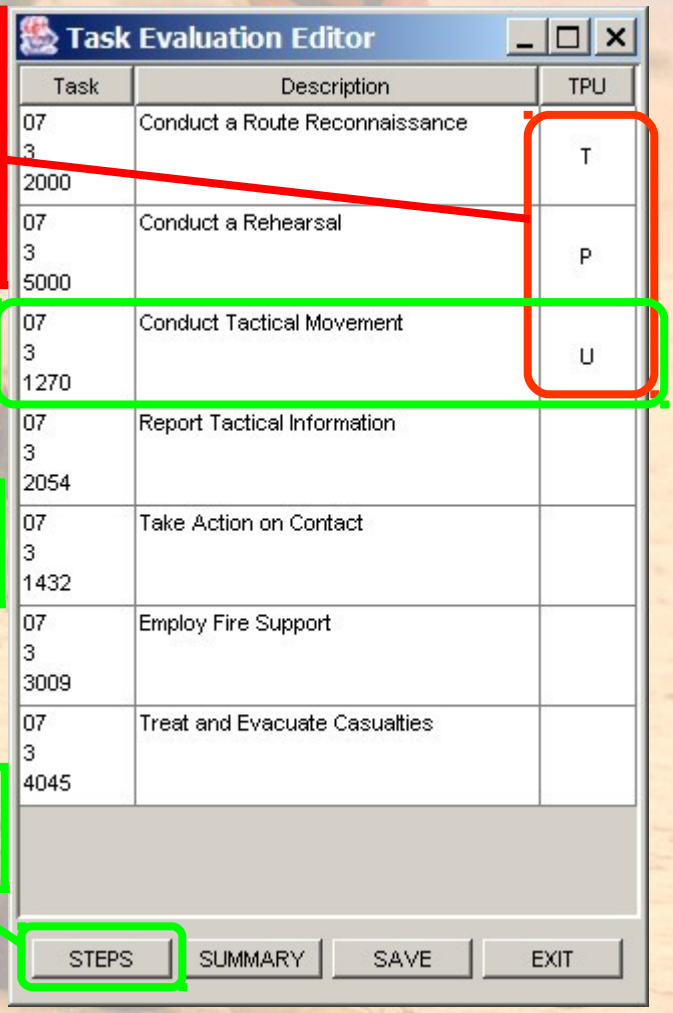
O/C SA and Direct Evaluation in the Field Provides Better Training Feedback

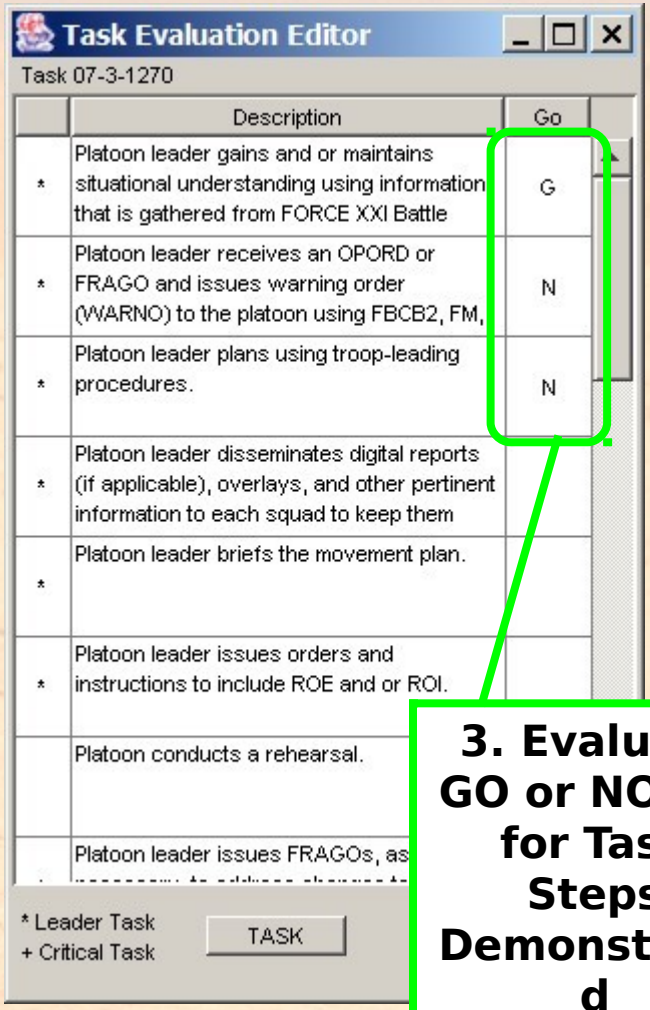
Data Collection O/C Tablet PC

Evaluate as Trained, Partially Trained, or Untrained

1. Highlight Task

2. View Task Steps



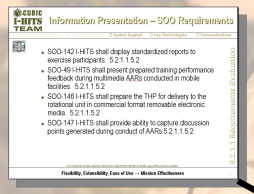

Task Evaluation Editor
Task 07-3-1270
Description
Go
Platoon leader gains and or maintains situational understanding using information that is gathered from FORCE XXI Battle
G
Platoon leader receives an OPORD or FRAGO and issues warning order (WARNO) to the platoon using FBCB2, FM,
N
Platoon leader plans using troop-leading procedures.
N
Platoon leader disseminates digital reports (if applicable), overlays, and other pertinent information to each squad to keep them
Platoon leader briefs the movement plan.
Platoon leader issues orders and instructions to include ROE and or ROI.
Platoon conducts a rehearsal.
Platoon leader issues FRAGOs, as
* Leader Task
+ Critical Task
TASK

3. Evaluate GO or NO-GO for Task Steps Demonstrated

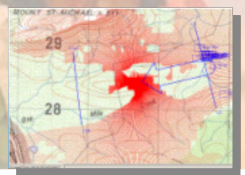
After Action Review Capabilities

PM TRADE

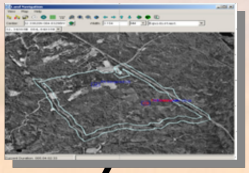
PM DT
Product Manager Digitized Training


Information Presentation – SOO Requirements
SOO-142 I-HITS shall display standardized reports to exercise participants. 5.2.1.1.5.2
SOO-49 I-HITS shall present prepared training performance feedback during multimedia AARs conducted in mobile facilities. 5.2.1.1.5.2
SOO-146 I-HITS shall prepare the THP for delivery to the rotational unit in commercial format removable electronic media. 5.2.1.1.5.2
SOO-147 I-HITS shall provide ability to capture discussion points generated during conduct of AARs.5.2.1.1.5.2

Standard 'Bullet' Charts

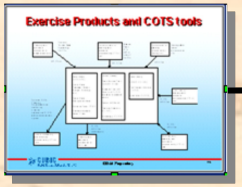


Visibility Fans



Unit Graphics on 2D and 3D

Combat Power



Graphics

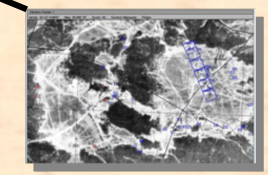
AAR & THP

Tactical Voice

Reports

Video

Photos



Static Snapshots, Flipbooks, Dynamic Replays All in 2D or 3D

A Full Palette of Multi-media Tools All Integrated Directly In PowerPoint

PM TRADE
PMT
Product Manager Digitized Training
2D
Slides

3D PLT AND 2D PLT ASSAULT TO ISOLATE AND CAPTURE CACHES

09:11:37 12-Feb-05

POSSIBLE FRATRICIDES IN 1st and 3d PLTs

09:13:19 12-Feb-05

SNIPER CONTINUES ATTRITION OF OUTER CORDON

09:14:15 12-Feb-05

C/4-11 LEAD ELEMENT CROSSING CO BOUNDARY

09:33:45 12-Feb-05

3D PLT CLEARS 50 AND 51; POSSIBLE FRATRICIDE

09:17:42 12-Feb-05

PM TRADE
PMDT
Product Manager Digitized Training
3D
DEMO